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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,224	12/08/2005	Michel Desroses	F-8553	7215

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EXAMINER	
DUNLAP, JONATHAN M	
ART UNIT	**PAPER NUMBER**
2855	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,224	DESROSES ET AL.	
	Examiner	Art Unit	
	Jonathan Dunlap	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *December 8, 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-21* is/are rejected.

7)☒ Claim(s) *13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *January 24, 2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of Applicants amendment to the abstract and the claims as submitted on December 8, 2005. Claims 1-10 have been cancelled and **claims 11-21** are pending in this application. An action on the merits is presented in the following.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The subject matter of this application admits of illustration by drawings 1-15 to facilitate understanding of the invention. Applicant is required to furnish these drawings under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if

the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The disclosure is objected to because of the following informalities:

- Page 4, line 7, "on gloves, masks, &c." should be rewritten as ---"on gloves, masks, etc.".

- Page 5, lines 7 and 13, "U.S. patent N°" should be rewritten as ---"U.S. patent #".

- Page 6, line7, "U.S. patent N°" should be rewritten as ---"U.S. patent #".

- Page 20, lines 7, 10 and 16, "Mumétal strip **5**" and "Mumétal strip **6**" are referenced by two different reference numbers. Furthermore, reference **6** is later used to reference a capacitor (converter **6**). [Emphasis Added]

- Page 20, line 13, "reference voltage the peak value" should be rewritten as ---"reference voltage to the peak value".

- Page 23, lines 1-2, "$©_{ref}$" and "$©_{sensor}$" should be rewritten as "C_{ref}" and "C_{sensor}".

- Page 26, lines 3-4, "present paragraph **12)quotes** an example". It is unclear to the Examiner what Applicant is attempting to disclose in this sentence.

Appropriate correction is required.

Claim Objections

Claim 13 is objected to because of the following informality: "permeability of 60,000 to 240.000" should be rewritten ---240,000---. Appropriate correction is required.

Claim 20 is objected to because of the following informality: "said data" should be rewritten as "said information" or claim 20 should be dependant upon claim 19.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claim 11** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 11 recites that the mobile body features the second integral sensor which comprises a variable inductor. However, the specification has disclosed that the stationary or mobile target, not the mobile body, houses the integral second sensor which comprises a variable inductor. No where in the disclosure of the Applicant does the mobile body, in fact, house a sensor, but rather it houses a highly permeable strip.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claim 11-12** and **15** are rejected under 35 U.S.C. 102(b) as being anticipated by **French et al. (U.S. Patent 4,761,005)**.

Considering **claim 11**, French discloses an apparatus for detecting presence and measuring strength of an impact of a blow struck by a mobile body on a mobile or stationary target, comprising (**Column 5, lines 45-68**):

- A first sensor (**24,26,28,30,32**) integral with the target **15** for detecting whether the target **15** has been impacted by the mobile body and producing an electric image of the impact (**Figure 3 and 5; Column 5, lines 45-68; Column 7, lines 1-4, 17-20, 24-28, 45-58; Column 8, lines 15-29**);
- The first sensor (**24,26,28,30,32**) comprising a variable capacitor (**Figure 3; Column 7, lines 1-4, 17-20 and 45-58**); and
- A second sensor **116** integral with the mobile body for detecting whether the mobile body grazes the target or strikes it that comprises a variable induction coil **110** (**Figures 9-10; Column 5, lines 45-68; Column 11, lines 4-18**).

Considering **claim 12**, wherein:

- The target **14** comprises means for creating a magnetic field in its vicinity (**Figure 1 and 9; Column 5, lines 30-37**);
- The mobile body **126** comprises a material **128** highly permeable to the magnetic field (**Figure 11; Column 11, lines 53-60, 65-68; Column 12, lines 1-4**); and

- The apparatus further comprises a magnetic field detector for detecting magnetic properties of the target (**Figure 12; Column 11, lines 19-28; Column 12, lines 5-25**).

Considering **claim 15**, wherein the magnetic field detector comprises:

- An induction coil **110** (**Figure 9**);
- An oscillating circuit (**Column 11, lines 39-42**);
- A converter **77** (**Figure 6A; Column 12, lines 35-60**);
- A comparator **72** (**Figure 6A; Column 12, lines 35-60**); and
- The magnetic field detector detecting variation of the magnetic properties of the target induced by a material which is permeable to the magnetic field (**Column 11, lines 19-28**).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 13-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **French et al.** (**U.S. Patent 4,761,005**) in view of **Le Thiec** (**U.S. Patent 5,065,093**).

Considering **claim 13**, French discloses that the material **128** is highly permeable to the magnetic field and comprises at least one ferromagnetic alloy (**Figure 11; Column 11, lines 53-68; Column 12, lines 1-4**).

The invention by French discloses all of the claimed inventions from above but fails to disclose that the highly permeable material that comprises at least one ferromagnetic alloy which has a high magnetic permeability and a low coercive force and has a permeability of 60,000 to 240.000.

7. However, Le Thiec teaches:

Considering **claim 13**, that the material highly permeable to the magnetic field comprises at least one ferromagnetic alloy having a high magnetic permeability and a low coercive force and has a permeability of 60,000 to 240.000 (**Column 10, lines 9-15**).

Considering **claim 14**, wherein the material permeable to the magnetic field comprises a Mumétal® or Permalloy® alloy (**Column 10, lines 9-15**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a Mumétal® or Permalloy® alloy with a high magnetic permeability with a low coercive force and a permeability of 60,000 and 240.000 as taught by Le Thiec in the invention by French. The motivation for doing so is found in the teachings of Le Thiec in that Le Thiec teaches that the highly permeable material is needed to increase the magnetic field sensor's sensitivity (**Column 1, lines 21-68; Column 2, lines 16-20**).

8. **Claims 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **French et al.** (**U.S. Patent 4,761,005**) in view of **Crouse** (**IBM 1,363,778**).

Considering **claims 16-17**, French discloses that upon impact, the deformable layers of the first sensor cause a conduction change in the layers of the variable capacitor (**Figure 3 and 5; Column 5, lines 45-68; Column 7, lines 1-4, 17-20, 24-28, 45-58; Column 8, lines 15-29**).

The invention by French, discloses all of the claimed inventions from above, but fails to disclose that the first sensor comprises a first and second capacitive matrix.

9. However, Crouse teaches:

Considering **claim 16**, wherein the first sensor comprises at least one matrix including a plurality of capacitors, the at least one matrix being partially deformable under the influence of an impact thereby to vary conductance of a circuit including the capacitors (**Page 1, lines 14-29**).

Considering **claim 17**, wherein the at least one matrix comprises:

- A first matrix including a first plurality of interconnected plates of a conductor metal; and
- A second matrix including a second plurality of interconnected plates of a conductor metal, respective plates of the first plurality of plates facing respective plates of the second plurality of plates and the deformation of the matrixes under the influence of an impact varying distance between respective pairs of the facing plates thereby to vary conductance of a circuit including the pairs of the facing plates (**Page 1, lines 14-29**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a first sensor comprising a first and second

capacitive matrix, wherein the impact by the moving body causes a variation in capacitance between the first and second matrices as taught by Crouse in the invention by French. The motivation for doing so is found in the teachings of Crouse in that Crouse teaches that through the use of the capacitive matrices, "changes of as little as one picofarad may be sensed easily" (**Page 1, lines 90-95**).

10. **Claim 18-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **French et al.** (**U.S. Patent 4,761,005**) in view of **Cook** (**U.S. Patent 6,056,674**)

Considering **claim 18**, French discloses a method for detecting nature of an impact of a blow struck by a mobile body on a mobile or stationary target, comprising (**Column 5, lines 45-68**):

- Creating a magnetic field on the target **14** (**Figure 1 and 9; Column 5, lines 30-37; Column 11, lines 5-42**);
- Providing a first sensor (**24,26,28,30,32**) comprising a variable capacitor integral with the target for detecting whether the target **15** has been impacted by the mobile body and producing an electric image of the impact, wherein impact of the mobile body on the capacitor varies capacity of the capacitor (**Figure 3 and 5; Column 5, lines 45-68; Column 7, lines 1-4, 17-20, 24-28, 45-58; Column 8, lines 15-29**);
- Providing a second sensor **116** comprising a variable induction coil **110** integral with the mobile body for detecting whether the mobile body grazes the target or strikes it, wherein variation of strength of the magnetic field

varies inductance of the induction coil (**Figures 9-10; Column 5, lines 45-68; Column 11, lines 4-18**);

The invention by French discloses all of the claimed limitations from above but fails to disclose that the capacitive and inductive variance information is stored in a 16-bit register and a 1-bit latch respectively and that that the computer processes said data to produce information for assisting refereeing of the combative sport.

11. However, Cook teaches:

Considering **claim 18**, a method for detecting nature of an impact of a blow struck by a mobile body on a mobile or stationary target, comprising:

- Memorizing the capacity variation in a 16 bit register **22**; and
- Memorizing information about the inductance variation by one bit in a low level latch if the mobile body is present and in a high level latch if the mobile body is absent (**Figure 1; Column 1, lines 26-38; Column 3, lines 25-38, lines 44-67**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further store the sensed information in a memory and/or register of a CPU as taught by Cook in the invention by French. The motivation for doing so would be to increase accuracy by allowing for the storage of additional bits or to increase speed by integrating the registers within the processing unit.

Considering **claim 19**, Cook teaches transmitting respective data of the capacity variation and of the inductance variation in the form of signals by means of radio waves to a receiver connected to a computer (**Column 6, lines 12-33**)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit respective data of the capacity variation and of the inductance variation in the form of signals by means of radio waves to a receiver connected to a computer as taught by Cook in the invention by French. The motivation for the combination is to "better identify the effects of the punches received" (**Column 6, lines 36-46**).

Considering **claim 20**, Cook teaches that the blows are struck in a combative sport and the computer processes said data to produce information of assisting refereeing of the combative sport (**Column 6, lines 12-46**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a computer to processes said data to produce information for assisting refereeing of the combative sport as taught by Cook in the invention by French. The motivation for the combination is to allow a match to be scored automatically as disclosed by Cook (**Column 6, lines 36-46**).

Considering **claim 21**, French discloses that the combative sport is taekwondo (**Column 1, lines 15-33**).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yakshin et al., Nauta et al., Wolff et al., Blonder et al., DeRose, Aldridge, Yamagishi et al. and Gregg. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Dunlap whose telephone number is (571) 270-1335. The examiner can normally be reached on M-F 8-5 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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February 12, 2007

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